Claims

1. Method for changing the crest factor of a discrete-time signal which is formed from temporally consecutive signal values of a signal vector, in which method, as a function of the signal vector, at least one correction vector is calculated and added to the signal vector, wherein the signal described by the signal vector is first filtered and then, as a function of the filtered signal vector, at least one correction vector is calculated and added to the filtered signal vector.

2. Method according to claim 1, wherein the signal described by the signal vector is high-pass filtered and/or low-pass filtered.

3. Method according to claim 1, wherein the signal is a carrier of data, all spectral components of the data lying below the sampling frequency of the signal divided by $2^{(N+1)}$, wherein the signal values of the signal vector after filtering are divided over 2^N part signal vectors in a cyclically alternating manner and for each part signal vector at least one correction vector is calculated independently from the respective part signal vector and added to the respective part signal vector, and then the elements of the part signal vectors are combined in a cyclically alternating manner into an output signal vector, where N is integral and ≥ 1.

4. Method according to claim 3, wherein $N = 1$.

5. Method according to claim 1, wherein the at least one correction vector is calculated by scaling of at least one output correction vector.

6. Method according to claim 5, wherein the at least one output correction vector contains exclusively spectral components in frequency ranges which are different to frequency ranges which are used to transmit data in the signal.

7. Method according to claim 5, wherein the elements of the at least one correction vector are calculated from the largest element and the smallest element of the elements of the digital signal vector as follows:

$$\Delta y_k = -\frac{1}{2}\cdot(-1)^k(\max((-1)^k\cdot y_k)+\min((-1)^k\cdot y_k)),$$

where k = 1, …, number of the elements of the signal vector.

8. Method according to claim 5, wherein the elements of the at least one correction vector are calculated from the largest element and the smallest element of the elements of the digital signal vector as follows:

$$\Delta y_k = -\frac{1}{2}\cdot(\max(y_k)+\min(y_k)),$$

where k = 1, …, number of the elements of the signal vector (y).

9. Method according to claim 1, wherein the elements of the at least one correction vector are multiplied by a window function, so that the elements of the at least one correction vector are 0 in at least one range.

10. Method according to claim 9, wherein the steps of calculating at least one correction vector as a function of the signal vector and the addition of the calculated at least one correction vector to the signal vector are repeated at least once.

11. Method according to claim 1, wherein the signal vector at the beginning of a first end is extended by at least one element of the signal vector beginning from the opposing second end of the signal vector.

12. Method according to claim 11 and claim 9, wherein the extension of the signal vector at the first end is carried out at the beginning of the method and the at least one windowed correction vector is extended corresponding to the extension of the signal vector at a first end of the windowed correction vector by at least one consecutive element of the windowed correction vector starting at the opposing second end of the windowed correction vector, so that the windowed correction vector and the signal vector are extended by the same number of elements.

13. Method according to claim 1, wherein the signal vector is calculated by inverse Fourier transformation.

14. Method according to claim 1, wherein the signal vector contains data according to the method of discrete multitone modulation.

15. Method according to claim 1, wherein the method for data transmission via telephone lines is used according to the ADSL standard.

16. Device for changing the crest factor of a discrete-time signal which is formed from temporally consecutive signal values of a signal vector, wherein the device is set up in such a way that, as a function of the signal vector at least one correction vector is calculated and added to the signal vector, wherein the device is set up in such a way that the signal described by the signal vector is first filtered and then at least one correction value is calculated as a function of the filtered signal vector and is added to the signal vector.

17. Device according to claim 16, wherein the device is set up to carry out a method according to any one of claims 1 to 15.

18. Device according to claim 16, wherein the device is a signal processor.